

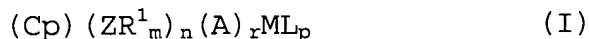


ATTACHMENT A

Claims 1 - 27: (Cancelled)

28. (New) A catalyst system for polymerizing olefins comprising a product obtained by contacting:

(A) a metallocene complex of formula (I):



wherein  $(\text{ZR}^1_{\text{m}})_n$  is a divalent group bridging Cp and A;

Z is selected from C, Si, Ge, N and P;

$\text{R}^1$  being equal or different from each other, is selected from hydrogen or a linear or branched, saturated or unsaturated  $\text{C}_1\text{-C}_{20}$  alkyl,  $\text{C}_3\text{-C}_{20}$  cycloalkyl,  $\text{C}_6\text{-C}_{20}$  aryl,  $\text{C}_7\text{-C}_{20}$  alkylaryl and  $\text{C}_7\text{-C}_{20}$  arylalkyl;

Cp is a substituted or unsubstituted cyclopentadienyl group, optionally condensed to one or more substituted or unsubstituted, saturated, unsaturated or aromatic rings, containing from 4 to 6 carbon atoms, optionally containing one or more heteroatoms;

A is selected from  $-\text{O}-$ ,  $-\text{S}-$ , and  $-\text{N}(\text{R}^2)-$ , wherein  $\text{R}^2$  is selected from hydrogen, a linear or branched, saturated or unsaturated  $\text{C}_1\text{-C}_{20}$  alkyl,  $\text{C}_3\text{-C}_{20}$  cycloalkyl,  $\text{C}_6\text{-C}_{20}$  aryl,  $\text{C}_7\text{-C}_{20}$  alkylaryl and  $\text{C}_7\text{-C}_{20}$  arylalkyl, or A is Cp;

M is selected from a transition metal belonging to group 3, 4, 5, and 6, or a lanthanide or actinide metal of the Periodic Table;

L being equal or different from each other, is a monoanionic sigma ligand selected from the group consisting of hydrogen, halogen,  $-\text{R}^3$ ,  $-\text{OR}^3$ ,  $-\text{OCOR}^3$ ,  $-\text{SR}^3$ ,  $-\text{NR}^3_2$  and  $-\text{PR}^3_2$ , wherein  $\text{R}^3$  is selected from a linear or branched, saturated or unsaturated  $\text{C}_1\text{-C}_{20}$  alkyl,  $\text{C}_3\text{-C}_{20}$  cycloalkyl,  $\text{C}_6\text{-C}_{20}$  aryl,  $\text{C}_7\text{-C}_{20}$  alkylaryl and  $\text{C}_7\text{-C}_{20}$  arylalkyl, wherein  $\text{R}^3$  optionally

contains one or more Si or Ge atoms;

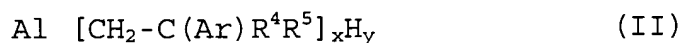
**m** is 1 or 2;

**n** is an integer ranging from 0 to 4;

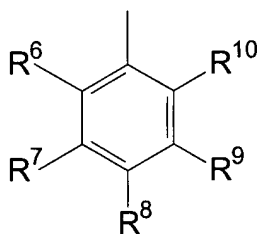
**r** is 0 or 1, with the proviso that **n** is 0 when **r** is 0;

**p** is an integer equal to an oxidation state of M minus 2 when **r**=1, and minus 1 when **r**=0, and ranges from 1 to 4;

(B) an organometallic aluminium compound of formula (II):



wherein Ar is a substituted aryl group corresponding to formula (III):



(III)

wherein R<sup>6</sup>, R<sup>8</sup> and R<sup>10</sup> are selected from the group consisting of hydrogen, halogen, -R<sup>3</sup>, -C(O)R<sup>3</sup>, -OR<sup>3</sup>, -SR<sup>3</sup>, -NR<sup>3</sup><sub>2</sub> and -NO<sub>2</sub>;

R<sup>7</sup> and R<sup>9</sup> are selected from the group consisting of hydrogen, halogen, linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>3</sub>-C<sub>20</sub> cycloalkyl, C<sub>6</sub>-C<sub>20</sub> aryl, C<sub>7</sub>-C<sub>20</sub> alkylaryl and C<sub>7</sub>-C<sub>20</sub> arylalkyl, wherein R<sup>7</sup> and R<sup>9</sup> optionally contain one or more Si or Ge atoms; two adjacent substituents R<sup>6</sup>-R<sup>10</sup> optionally form a ring, having 3 to 8 carbon atoms; with the proviso that R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup> and R<sup>10</sup> cannot be hydrogen, and Ar cannot be an alkylaryl;

R<sup>4</sup> is selected from a linear or branched, saturated or unsaturated, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>6</sub>-C<sub>20</sub> aryl, C<sub>7</sub>-C<sub>20</sub> arylalkyl and C<sub>7</sub>-C<sub>20</sub> alkylaryl;

$R^5$  is selected from hydrogen or a linear or branched, saturated or unsaturated,  $C_1$ - $C_{10}$  alkyl,  $C_6$ - $C_{20}$  aryl,  $C_7$ - $C_{20}$  arylalkyl and  $C_7$ - $C_{20}$  alkylaryl;  $R^4$  and  $R^5$  optionally form a ring, having 3 to 8 carbon atoms; a carbon atom in the compound of formula (II) being optionally replaced by a Si or a Ge atom;

$x$  is 2 or 3;

$y = 3$  minus  $x$ ; and

(C) water;

wherein a molar ratio between the organometallic aluminium compound (B) and the water (C) is between 1:1 and 100:1.

29. (New) The catalyst system according to claim 28, wherein the molar ratio is about 2:1.

30. (New) The catalyst system according to claim 28, wherein a molar ratio between the organometallic aluminium compound (B) and the metallocene complex (A) ranges from 50:1 to 50,000:1.

31. (New) The catalyst system according to claim 28, wherein M is selected from Ti, Zr or Hf.

32. (New) The catalyst system according to claim 28, wherein the divalent group  $(ZR^1_m)_n$  is selected from the group consisting of  $CR^1_2$ ,  $(CR^1_2)_2$ ,  $(CR^1_2)_3$ ,  $SiR^1_2$ ,  $GeR^1_2$ ,  $NR^1$  and  $PR^1$ ,  $R^1$  has the same meaning as in claim 19.

33. (New) The catalyst system according to claim 32, wherein the divalent group  $(ZR^1_m)_n$  is selected from the group consisting of  $Si(CH_3)_2$ ,  $SiPh_2$ ,  $CH_2$ ,  $(CH_2)_2$ ,  $(CH_2)_3$  and  $C(CH_3)_2$ .

34. (New) The catalyst system according to claim 28, wherein Cp is selected from the group consisting of cyclopentadienyl; mono-, di-, tri- and tetra-methyl cyclopentadienyl; 4-<sup>t</sup>butyl-cyclopentadienyl; 4-adamantyl-cyclopentadienyl; indenyl; mono-, di-, tri- and tetra-methyl indenyl; 3-<sup>t</sup>butyl-indenyl; 3-trimethylsilyl-indenyl; 4,5,6,7-tetrahydroindenyl; fluorenyl; 5,10-dihydroindeno[1,2-b]indol-10-yl; N-methyl- or N-phenyl-5,10-dihydroindeno [1,2-b]indol-10-yl; 5,6-dihydroindeno[2,1-b]indol-6-yl; N-methyl-or N-phenyl-5,6-dihydroindeno[2,1-b]indol-6-yl; azapentalene-4-yl; thiapentalene-4-yl; azapentalene-6-yl; thiapentalene-6-yl; and mono-, di- and tri-methyl-azapentalene-4-yl.

35. (New) The catalyst system according to claim 28, wherein L is selected from the group consisting of -Cl, -Br, -Me, -Et, -n-Bu, -sec-Bu, -Ph, -Bz, -CH<sub>2</sub>SiMe<sub>3</sub>, -OEt, -OPr, -OBu, -OBz and -NMe<sub>2</sub>.

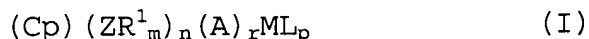
36. (New) The catalyst system according to claim 28, wherein Ar is selected from the group consisting of 4-fluoro-phenyl, 4-chloro-phenyl, 4-methoxyphenyl, 4-nitrophenyl, 2,4-difluorophenyl, 2,4-dichlorophenyl, 2,6-difluorophenyl, 2,6-dichlorophenyl, 3,5-difluorophenyl, 3,5-dichlorophenyl, 2,4,6-trifluorophenyl, 2,4,6-trichlorophenyl, 3,4,5-trifluorophenyl, 3,4,5-trichlorophenyl, pentafluorophenyl and pentachlorophenyl.

37. (New) The catalyst system according to claim 28, wherein the organometallic aluminium compound of formula (II) is selected from the group consisting of tris[2-(4-fluorophenyl)-propyl]aluminium, tris[2-(4-chlorophenyl)-propyl]aluminium, and tris[2-(pentafluorophenyl)-

propyl]aluminium.

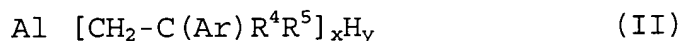
38. (New) A catalyst system for polymerizing olefins comprising a product obtained by contacting:

(A) a metallocene complex of formula (I):



wherein M, Cp,  $(\text{ZR}^1_{\text{m}})_n$ , A, L, r and p have the same meanings as in claim 28; and

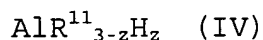
(B') a product of a reaction between water and an organometallic aluminium compound of formula (II):



wherein Ar,  $\text{R}^4$ ,  $\text{R}^5$ , x and y have the same meanings as in claim 28;

wherein a molar ratio between the organometallic aluminium compound and the water is between 1:1 and 100:1.

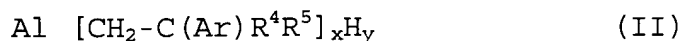
39. (New) The catalyst system according to claim 28, wherein the metallocene complex is pre-alkylated with at least one organometallic aluminium compound of formula (IV):



wherein  $\text{R}^{11}$  is selected from a linear or branched, saturated or unsaturated,  $\text{C}_1\text{-C}_{10}$  alkyl,  $\text{C}_6\text{-C}_{20}$  aryl,  $\text{C}_7\text{-C}_{20}$  arylalkyl and  $\text{C}_7\text{-C}_{20}$  alkylaryl; and

z is 0 or 1.

40. (New) An alumoxane obtained by contacting an organometallic aluminium compound of formula (II)



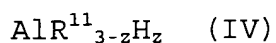
wherein Ar,  $\text{R}^4$ ,  $\text{R}^5$ , x and y have the same meanings as in claim 28, with water, wherein a molar ratio between the organometallic aluminium compound and the water is between 1:1 and 100:1.

41. (New) The catalyst system for polymerizing olefins according to claim 28, wherein the olefins comprise at least one  $\alpha$ -olefin of formula  $\text{CH}_2=\text{CHR}$ , wherein R is hydrogen or a  $\text{C}_1\text{-C}_{20}$  alkyl radical.

42. (New) The catalyst system for polymerizing olefins according to claim 41, wherein said  $\alpha$ -olefin is selected from the group consisting of propylene, 1-butene, 4-methyl-1-pentene, 1-hexene and 1-octene.

43. (New) The catalyst system for polymerizing olefins according to claim 28, wherein ethylene is copolymerized with an  $\alpha$ -olefin of formula  $\text{CH}_2=\text{CHR}'$ , wherein R' is selected from a linear, branched or cyclic  $\text{C}_1\text{-C}_{20}$  alkyl radical, or with a cycloolefin, and optionally with a polyene.

44. (New) The catalyst system according to claim 38, wherein the metallocene complex is pre-alkylated with one or more organometallic aluminum compounds of formula (IV):



wherein  $\text{R}^{11}$  is selected from a linear or branched, saturated or unsaturated,  $\text{C}_1\text{-C}_{10}$  alkyl,  $\text{C}_6\text{-C}_{20}$  aryl,  $\text{C}_7\text{-C}_{20}$  arylalkyl and  $\text{C}_7\text{-C}_{20}$  alkylaryl; and

$z$  is 0 or 1.

45. (New) The catalyst system for polymerizing olefins according to claim 38, wherein the olefins comprise at least one  $\alpha$ -olefin of formula  $\text{CH}_2=\text{CHR}$ , wherein R is hydrogen or a  $\text{C}_1\text{-C}_{20}$  alkyl radical.

46. (New) The catalyst system for polymerizing olefins according to claim 45, wherein said  $\alpha$ -olefin is selected from the group consisting of propylene, 1-butene, 4-methyl-1-pentene, 1-hexene and 1-octene.

47. (New) The catalyst system for polymerizing olefins according to claim 38, wherein ethylene is copolymerized with an  $\alpha$ -olefin of formula  $\text{CH}_2=\text{CHR}'$ , wherein  $\text{R}'$  is selected from a linear, branched or cyclic  $\text{C}_1\text{-C}_{20}$  alkyl radical, or with a cycloolefin, and optionally with a polyene.

48. (New) The catalyst system for polymerizing olefins according to claim 39, wherein the olefins comprise at least one  $\alpha$ -olefin of formula  $\text{CH}_2=\text{CHR}$ , wherein  $\text{R}$  is hydrogen or a  $\text{C}_1\text{-C}_{20}$  alkyl radical.

49. (New) The catalyst system for polymerizing olefins according to claim 48, wherein said  $\alpha$ -olefin is selected from the group consisting of propylene, 1-butene, 4-methyl-1-pentene, 1-hexene and 1-octene.

50. (New) The catalyst system for polymerizing olefins according to claim 39, wherein ethylene is copolymerized with an  $\alpha$ -olefin of formula  $\text{CH}_2=\text{CHR}'$ , wherein  $\text{R}'$  is selected from a linear, branched or cyclic  $\text{C}_1\text{-C}_{20}$  alkyl radical, or with a cycloolefin, and optionally with a polyene.